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# MINERAL PRODUCTION IN IOWA

IN 1908

BY

S. W. BEYER

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# MINERAL PRODUCTION IN IOWA FOR 1908\*

BY S. W. BEYER.

## VALUE OF MINERAL PRODUCTION.

1906

Coal .....	\$11,619,455
Clay .....	3,477,237
Stone including lime.....	577,782
Gypsum .....	573,498
Lead and zinc.....	26,300
Sand-lime brick .....	38,225
Mineral water† .....	27,540
Sand and gravel.....	74,380
Total .....	\$16,414,447

1907

Coal .....	\$12,258,012
Clay .....	3,733,476
Stone including lime.....	648,135
Gypsum .....	730,383
Lead and zinc.....	58,400
Sand-lime brick .....	55,618
Mineral waters‡ .....	33,400
Sand and gravel.....	110,501
Total .....	\$17,627,925

1908

Coal .....	\$11,772,228
Clay .....	4,078,627
Stone including lime.....	569,775
Gypsum .....	564,688
Lead and zinc.....	26,799
Sand-lime brick .....	42,881
Mineral waters§ .....	58,900
Sand and gravel**.....	976,549
Total .....	\$18,090,447

\*The mineral statistics for 1908 were collected through co-operation of the Iowa Geological Survey and the United States Geological Survey. The slight differences in results shown below are due to natural variations in interpretation and editing of returns.

†Mineral paint is combined with mineral water.

‡Mineral paints and iron ore are included with mineral waters.

§Mineral paints included with mineral waters.

\*\*Portland cement included with sand and gravel.

The mineral production for 1908 shows a gain in the value of clay products, mineral waters and sand and gravel and a falling off in all of the other mineral products produced in the state. The greatest shrinkage was in the coal production. The total value of mineral products marketed shows a gain due to the opening and operation of the Portland cement plant at Mason City. Prices for all the mineral products of the state, save coal, were lower than for the preceding year. The manifold uses of cement and the greater effort directed toward the betterment of the public highways are responsible for the increase in the production of sand and gravel. The great increase in the manufacture and use of drain tile owing to the continuance of wet years swells the clay output. The outlook for 1909 is favorable for an increased production in all of the more important mineral industries.

Table I gives the total mineral production by counties and follows herewith:

TABLE NO. I.

Value of Total Mineral Production by Counties for 1908.

Counties	No. of producers	Coal	Clay	Stone and Lime	Miscellaneous	Total Value
Adair .....	2		\$ 7,300			\$ 7,300
Adams .....	14	\$ 42,235	25,289			67,524
Allamakee .....	2			\$ 242		242
Appanoose .....	71	2,151,905	28,648			2,170,894
Audubon .....	1					
Benton .....	9		28,674	491		29,165
Black Hawk .....	17			13,405	\$ 41,915	69,920
Boone .....	15	461,544	53,475			515,019
Bremer .....						
Buena Vista .....	4		40,000			40,250
Butler .....	1					
Calhoun .....	3		36,900			36,900
Carroll .....	1					
Cass .....	2		19,200			19,200
Cedar .....	3					38,199
Cerro Gordo .....	11		723,988	30,775		1,447,868
Clarke .....	5			1,345		2,745
Clay .....	1					
Clayton .....	11		5,272	9,804	905	15,981
Clinton .....	10		15,450	1,870		44,699
Crawford .....	2		6,520			6,520
Dallas .....	7	299,407	178,488			477,910

## MINERAL PRODUCTION BY COUNTIES

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TABLE NO. I—CONTINUED

Counties	No. of pro- ducers	Coal	Clay	Stone and Lime	Miscel- laneous	Total Value
Davis .....	4	7,400				7,600
Decatur .....	2					4,157
Delaware .....	6		6,904	120		7,024
Des Moines .....	17		11,484	18,798	10,100	40,382
Dubuque .....	22		29,536	39,017	32,224	110,777
Emmet .....	1					
Fayette .....	9			5,665	1,890	17,555
Floyd .....	7			1,650	2,680	5,313
Franklin .....	1					
Fremont .....	5		25,082			25,082
Greene .....	5	30,581	29,549			60,130
Grundy .....	1					
Guthrie .....	14	36,975	20,218			57,193
Hamilton .....	2		60,342			60,342
Hancock .....	2		8,500			8,500
Hardin .....	14		59,520	37,852	209	97,581
Harrison .....	4		6,300			6,300
Henry .....	7		21,557			23,732
Howard .....	5			578		6,678
Humboldt .....	3			1,454		21,454
Ida .....	3				2,600	2,600
Iowa .....	6		37,230			37,230
Jackson .....	5		4,750	49,756		54,506
Jasper .....	13	695,078	29,470			766,548
Jefferson .....	5		71,168			71,268
Johnson .....	11		23,580		8,095	32,487
Jones .....	14		13,211	53,707		66,918
Keokuk .....	19	34,644	72,804	623		107,471
Kossuth .....	1					
Lee .....	13		8,220	33,472		41,692
Linn .....	20		18,517	75,065	16,229	120,454
Louisa .....	7		7,850	5,623		13,473
Lucas .....	2					16,343
Lyon .....	2				5,831	5,831
Madison .....	5			29,428		45,165
Mahaska .....	28	1,182,648	68,814			1,251,462
Marion .....	18	432,390	45,360			478,112
Marshall .....	9		39,087			71,965
Mills .....	3		7,840			7,840
Monroe .....	13	2,801,465				2,801,465
Montgomery .....	5		5,780			5,810
Muscatine .....	2		23,635		12,880	36,515
Osceola .....	2				2,534	2,534
Page .....	12	31,993	35,995		12,175	80,163
Palo Alto .....	5				3,209	3,209
Plymouth .....	1					
Pocahontas .....	2					14,656
Polk .....	56	2,816,082	560,026		66,416	3,442,524
Pottawattamie .....	5		49,791			49,791
Poweshiek .....	6		44,020			44,020
Sac .....	3				5,470	5,470
Scott .....	15		26,871	88,450		120,005
Shelby .....	1					

MINERAL PRODUCTION IN IOWA FOR 1908

TABLE NO. I—CONTINUED

Counties	No. of pro- ducers	Coal	Clay	Stone and Lime	Miscel- laneous	Total Value
Sioux .....	2					
Story .....	4		37,860			37,860
Tama .....	6		75,391			75,391
Taylor .....	3	33,881	9,207			43,088
Union .....	2		33,925			33,925
Van Buren .....	13	26,964	6,939	492		34,395
Wapello .....	21	291,079	76,434	18,150	9,365	398,028
Warren .....	8	16,633	19,847			36,480
Washington .....	10		42,511	1,701		44,212
Wayne .....	9	234,843				236,593
Webster .....	30	127,604	578,310		567,238	1,273,152
Winnebago .....	1					
Winneshek .....	1					
Woodbury .....	10		224,623		46,370	270,993
Worth .....	1					
Wright .....	8		98,800		14,870	113,670
Single Producers ...		17,477	232,565	50,242	806,612	143,987
Totals .....		\$11,772,228	\$ 4,078,627	\$ 569,775	\$1,669,817	\$18,090,447

**Coal**

The coal production for 1908 shows a shrinkage of nearly six per cent while the average price was about three cents per ton higher, the highest price on record since 1880. Monroe county shows the largest shrinkage and all but two of the leading coal producing counties show a falling off in production. Polk and Mahaska are the exceptions. The average number of men employed is the largest in the history of the industry in Iowa while the average number of days worked is the lowest since 1897. The output, disposition of product, value, average price per ton, average number of days worked and average number of men employed are given by counties below:

TABLE NO. II.

## COAL PRODUCTION OF IOWA IN 1908, BY COUNTIES.

Counties	Loaded at mines for shipment— Short Tons	Sold to local trade and used by employees— Short Tons	Used at mines for steam and heat— Short Tons	Total quantity— Short Tons	Total value	Average price per ton	Average number of days worked	Average number of em- ployes
Adams .....	300	17,152	40	17,492	\$ 42,235	\$ 2.47	141	83
Appanoose .....	1,101,788	45,901	11,492	1,159,181	2,151,905	1.86	175	4,170
Boone .....	196,537	32,421	8,540	237,498	461,544	1.95	184	735
Dallas .....	160,315	7,130	7,140	174,585	299,407	1.71	234	407
Davis .....	-----	3,700	-----	3,700	7,400	2.00	146	24
Greene .....	-----	12,531	400	12,931	30,581	2.37	223	37
Guthrie .....	-----	13,179	5	13,184	36,975	2.80	170	72
Jasper .....	364,500	10,682	18,334	393,516	695,078	1.77	233	804
Keokuk .....	-----	17,206	1,095	18,301	34,044	1.86	219	31
Lucas .....	-----	-----	-----	-----	-----	-----	-----	-----
Mahaska .....	755,653	34,032	19,548	809,233	1,182,648	1.46	203	1,852
Marion .....	235,401	26,896	2,290	294,587	432,390	1.47	201	646
Monroe .....	1,864,440	49,074	52,105	1,965,619	2,801,465	1.44	244	3,171
Page .....	-----	11,364	-----	11,364	31,993	2.82	124	59
Polk .....	1,351,356	226,995	40,544	1,618,895	2,816,082	1.74	228	3,129
Scott .....	-----	-----	-----	-----	-----	-----	-----	-----
Taylor .....	7,806	7,887	140	15,833	33,881	2.12	211	67
Van Buren .....	7,476	5,341	45	12,862	26,964	2.10	190	34
Wapello .....	126,671	55,249	2,732	184,652	291,079	1.58	190	440
Warren .....	-----	6,670	50	6,720	16,633	2.44	145	36
Wayne .....	114,074	12,053	32	126,159	234,843	1.86	234	421
Webster .....	46,937	15,180	1,101	63,218	127,604	2.02	183	187
Single Producers .....	-----	9,987	-----	9,987	17,477	1.75	124	34
Total.....	6,363,254	620,630	165,633	7,149,517	\$ 11,772,228	\$ 1.65	205	16,439
The returns of the United States Geological Survey are as follows.	6,345,590	650,481	165,239	7,161,310	11,706,402	1.63	214	16,021

COAL PRODUCTION OF IOWA IN 1908

The table given herewith presents a fair picture of the Iowa coal industry during the past ten years:

Year	Total Tons	Value	Average Price	Average Number of Days Worked	Average Number of Men Employed
1899 -----	5,177,479	\$ 6,397,338	\$ 1.24	229	10,971
1900 -----	5,202,939	7,155,341	1.38	228	11,608
1901 -----	5,617,499	7,822,805	1.39	218	12,653
1902 -----	5,904,766	8,660,287	1.47	227	12,434
1903 -----	6,365,233	10,439,139	1.64	232	13,583
1904 -----	6,507,655	10,439,496	1.60	213	15,373
1905 -----	6,798,609	10,586,381	1.56	209	15,113
1906 -----	7,266,224	11,619,455	1.60	224	15,260
1907 -----	7,574,322	12,258,012	1.62	230	15,585
1908 -----	7,149,517	11,772,228	1.65	205	16,439

The ten leading producers during 1907 according to the authority of the United States Geological Survey were as follows:

State	Short Tons	Value	Average Price	Average No. of Days Worked	Average No. of Men Empl'd
1. Pennsylvania .....	150,143,177	\$155,664,026	\$ 1.04	255	163,295
2. Illinois .....	51,317,146	54,687,382	1.07	218	65,581
3. West Virginia .....	48,091,583	47,846,630	0.99	230	59,029
4. Ohio .....	32,142,419	35,324,746	1.10	199	46,833
5. Alabama .....	14,250,454	18,405,468	1.29	242	21,388
6. Indiana .....	13,985,713	15,114,300	1.08	197	21,022
7. Colorado .....	10,790,236	15,079,449	1.40	258	14,223
8. Kentucky .....	10,753,124	11,405,038	1.06	210	16,971
9. Iowa .....	7,574,322	12,258,012	1.62	230	15,585
10. Kansas .....	7,322,449	11,159,698	1.52	225	12,439
Whole United States..	480,363,424	\$614,798,898	\$ 1.14	234	513,258

The following table based upon figures given by the United States Geological Survey gives the production for the ten states which were the leaders in output of coal in 1908. It will be seen that Iowa maintains her rank of the preceding year although there are some changes among other states. As compared with the preceding year there is a sharp decline, both in quantity produced and in spot value:



## TEN LEADING PRODUCING STATES IN 1908.

State	Short Tons	State	Value
1. Pennsylvania .....	117,179,527	1. Pennsylvania .....	\$118,816,303
2. Illinois .....	47,659,690	2. Illinois .....	49,978,247
3. West Virginia .....	41,897,843	3. West Virginia.....	40,009,054
4. Ohio .....	26,270,639	4. Ohio .....	27,897,704
5. Indiana .....	12,314,890	5. Alabama .....	14,647,891
6. Alabama .....	11,604,593	6. Colorado .....	13,586,988
7. Kentucky .....	10,246,553	7. Indiana .....	13,084,297
8. Colorado .....	9,634,973	8. Iowa .....	11,706,402
9. Iowa .....	7,161,310	9. Kentucky .....	10,317,162
10. Kansas .....	6,245,508	10. Kansas .....	9,292,222
Whole United States...415,842,698		\$532,314,117	

The outlook for 1909 is for an increase in production and a slight falling off in average price per ton.

### Clay Products

The value of clay products marketed in 1908 shows a splendid growth of approximately ten per cent. This growth is recorded in spite of the fact that there was a falling off in production of the majority of the common clay products. Iowa holds her position in first place as a producer and user of drain tile and doubled her output of sewer pipe during the year. Mason City in Cerro Gordo county is the greatest center for the manufacture of drain tile in the United States, and for that matter in the world. Eight plants, fully equipped and up-to-date, are in operation at the present time. Webster county is rapidly coming to the front in the manufacture of hollow ware, including drain tile, sewer pipe and hollow building block.

## MINERAL PRODUCTION IN IOWA FOR 1908

The clay products for 1908 were distributed as follows:

Article	Quantity in Thousands	Value	Compared With 1907	
			Incr'ase per cent	Decr'ase per cent
Common Brick .....	135,678	\$ 896,890	-----	17 +
Paving Brick and Block .....	16,672	185,112	-----	17
Face Brick .....	7,900	86,232	-----	10 +
Drain Tile .....	-----	2,522,363	25 +	-----
Sewer Pipe .....	-----	211,044	104 +	-----
Building Block .....	-----	129,003	-----	27 +
Pottery .....	-----	18,710	-----	1 -
Miscellaneous* .....	-----	29,273	140 +	-----
<b>Total† .....</b>	-----	<b>\$ 4,078,627</b>	10 -	-----

\*Includes raw clay mined and sold, \$3,690.

†The returns of the United States Geological Survey give the total as \$4,073,187. The figures for pottery and raw clay are as above.

TABLE NO. III.

VALUE OF IOWA CLAY PRODUCTS FOR 1908, TABULATED BY COUNTIES.

Counties	Number of producers	Com'on Brick	Paving Brick or Block	Face Brick	Drain Tile	Miscel- laneous	Total Value
Adair .....	2	\$ 3,600	-----	-----	\$ 3,700	-----	\$ 7,300
Adams .....	4	7,780	-----	-----	17,509	-----	25,289
Appanoose .....	3	19,314	-----	-----	9,334	-----	28,648
Audubon .....	1	-----	-----	-----	-----	-----	-----
Benton .....	6	5,960	-----	-----	22,714	-----	28,674
Black Hawk .....	1	-----	-----	-----	-----	-----	-----
Boone .....	3	15,308	\$ 19,161	\$ 5,194	10,812	\$ 3,000	53,475
Buena Vista .....	3	1,000	-----	-----	39,000	-----	40,000
Butler .....	1	-----	-----	-----	-----	-----	-----
Calhoun .....	3	1,000	-----	-----	35,400	500	36,900
Carroll .....	1	-----	-----	-----	-----	-----	-----
Cass .....	2	5,500	-----	7,000	2,700	4,000	19,200
Cedar .....	1	-----	-----	-----	-----	-----	-----
Cerro Gordo .....	6	20,097	-----	-----	692,291	11,600	723,988
Clarke .....	1	-----	-----	-----	-----	-----	-----
Clay .....	1	-----	-----	-----	-----	-----	-----
Clayton .....	4	4,312	-----	-----	960	-----	5,272
Clinton .....	3	9,590	-----	-----	5,000	860	15,450
Crawford .....	2	6,110	-----	110	-----	300	6,520
Dallas .....	7	8,774	-----	-----	169,714	-----	178,488
Decatur .....	1	-----	-----	-----	-----	-----	-----

## IOWA CLAY PRODUCTS FOR 1908

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TABLE NO. III—CONTINUED

Counties	Number of producers	Com'on Brick	Paving Brick or Block	Face Brick	Drain Tile	Miscellaneous	Total Value
Delaware .....	3	1,600	-----	-----	2,304	3,000	6,904
Des Moines .....	3	5,901	-----	83	5,500	-----	11,484
Dubuque .....	3	29,536	-----	-----	-----	-----	29,536
Emmet .....	1	-----	-----	-----	-----	-----	-----
Fayette .....	1	-----	-----	-----	-----	-----	-----
Floyd .....	1	-----	-----	-----	-----	-----	-----
Fremont .....	5	4,999	-----	-----	-----	20,083	25,082
Greene .....	2	500	-----	-----	29,049	-----	29,549
Grundy .....	1	-----	-----	-----	-----	-----	-----
Guthrie .....	3	2,554	-----	-----	13,418	4,246	20,218
Hamilton .....	2	11,142	-----	-----	49,200	-----	60,342
Hancock .....	2	-----	-----	-----	8,500	-----	8,500
Hardin .....	5	500	-----	-----	58,520	500	59,520
Harrison .....	4	6,300	-----	-----	-----	-----	6,300
Henry .....	6	1,707	-----	-----	19,850	-----	21,557
Howard .....	1	-----	-----	-----	-----	-----	-----
Humboldt .....	1	-----	-----	-----	-----	-----	-----
Ida .....	1	-----	-----	-----	-----	-----	-----
Iowa .....	6	10,750	900	-----	25,580	-----	37,230
Jackson .....	2	550	-----	-----	4,200	-----	4,750
Jasper .....	6	13,200	-----	-----	16,020	250	29,470
Jefferson .....	4	12,005	-----	-----	59,163	-----	71,168
Johnson .....	4	15,080	-----	-----	8,500	-----	23,580
Jones .....	3	2,393	-----	-----	10,818	-----	13,211
Keokuk .....	10	5,712	-----	-----	67,092	-----	72,804
Kossuth .....	1	-----	-----	-----	-----	-----	-----
Lee .....	3	6,850	-----	250	1,120	-----	8,220
Linn .....	6	8,553	-----	-----	9,964	-----	18,517
Louisa .....	2	1,250	-----	-----	6,600	-----	7,850
Lucas .....	1	-----	-----	-----	-----	-----	-----
Madison .....	1	-----	-----	-----	-----	-----	-----
Mahaska .....	4	14,213	25,000	1,600	28,001	-----	68,814
Marion .....	3	18,260	-----	-----	22,800	4,300	45,360
Marshall .....	8	7,550	-----	5,967	20,570	5,000	39,087
Mills .....	3	7,840	-----	-----	-----	-----	7,840
Montgomery .....	4	3,830	-----	-----	1,700	250	5,780
Muscatine .....	9	14,024	-----	-----	1,500	8,111	23,635
Page .....	5	27,775	-----	-----	8,220	-----	35,995
Palo Alto .....	1	-----	-----	-----	-----	-----	-----
Plymouth .....	1	-----	-----	-----	-----	-----	-----
Pocahontas .....	1	-----	-----	-----	-----	-----	-----
Polk .....	15	115,579	128,415	22,135	164,449	129,448	560,026
Pottawattamie .....	5	49,541	-----	-----	250	-----	49,791
Poweshiek .....	6	6,364	-----	-----	37,656	-----	44,020
Scott .....	3	12,890	650	-----	4,221	9,110	26,871
Shelby .....	1	-----	-----	-----	-----	-----	-----
Sioux .....	1	-----	-----	-----	-----	-----	-----
Story .....	4	6,100	200	360	31,200	-----	37,860
Tama .....	6	27,205	-----	16,670	31,516	-----	75,391
Taylor .....	2	4,236	111	-----	4,860	-----	9,207
Union .....	2	7,875	-----	-----	20,500	5,550	33,925
Van Buren .....	3	2,861	-----	-----	4,078	-----	6,939

TABLE NO. III—CONTINUED

Counties	Number of producers	Common Brick	Paving Brick or Block	Face Brick	Drain Tile	Miscellaneous	Total Value
Wapello .....	4	39,522	9,036	916	24,611	2,349	76,434
Warren .....	3	570	-----	-----	19,277	-----	19,847
Washington .....	5	6,039	-----	-----	36,472	-----	42,511
Wayne .....	1	-----	-----	-----	-----	-----	-----
Webster .....	12	37,999	1,541	7,500	356,584	174,686	578,310
Winnebago .....	1	-----	-----	-----	-----	-----	-----
Winneshiek .....	1	-----	-----	-----	-----	-----	-----
Woodbury .....	6	184,275	-----	18,447	21,871	30	224,623
Worth .....	1	-----	-----	-----	-----	-----	-----
Wright .....	3	600	-----	-----	98,200	-----	98,800
Single Producers..	27	52,315	98	-----	179,295	857	232,565
	301	\$896,890	\$185,112	\$86,232	\$2,522,363	\$388,030*	\$4,078,627*

\*Includes pottery and raw clay mined and sold.

Iowa ranked ninth in the total production for 1907, maintaining her rank and showing an increase in production over the preceding year of 7.49 per cent against a decrease of 1.30 per cent for the whole United States. The ten leading producers, with number of firms in operation, value and percentage of total products, are given below, as tabulated by the United States Geological Survey:

State	No. of Operating firms reporting	Value	Percentage of total Product
Ohio .....	736	\$ 30,340,830	19.09
Pennsylvania .....	487	20,291,621	12.77
New Jersey .....	165	16,005,460	10.07
New York .....	417	13,220,489	8.32
Illinois .....	247	11,772,874	7.41
Indiana .....	172	6,898,871	4.34
Missouri .....	392	6,858,124	4.32
California .....	118	5,740,537	3.61
Iowa .....	276	3,728,785	2.35
West Virginia .....	63	3,640,387	2.29
Total for United States.....	5,536	\$ 158,942,369	100.00

### Pottery

The production of pottery for the year 1908 shows but little change when compared with that for 1907. The output for 1908 was as follows:

Red earthen ware.....	\$ 8,161
Stoneware .....	7,549
Miscellaneous .....	3,000
Total .....	\$18,710

An increased output is expected for the present year owing to the enlargement of the plant at Ottumwa.

### Clay

The production and sale of raw clay during 1908 was less than for the preceding year. This is shown not so much in the diminished tonnage as in the lower prices received, especially for fire clay. These facts are shown in the following table:

Kind	Quantity in Short Tons	Value
Fire Clay .....	6,234	\$ 1,990
Brick Clay .....	2,400	1,200
Miscellaneous .....	500	500
Total .....	9,134	\$ 3,690

### Stone

The quarryy production for 1908 shows a falling off of about twelve and one-half per cent. The greatest shrinkage is in stone used for building purposes. The amount of crushed stone used for concrete shows a marked increase. The production for the year was distributed as follows:

Limestone—	
Building stone .....	\$ 87,846
Paving, curbing and flagging.....	12,239
Rubble and riprap.....	119,709
Crushed stone used for—	
Roadmaking .....	65,175
Railway ballast.....	51,688
Concrete .....	149,439
Lime burned .....	79,400
Other purposes .....	1,942
*Total .....	\$567,438
Sandstone .....	2,337
Total stone.....	\$569,775

\*The returns of the United States Geological Survey give the total output of limestone as \$610,345. The lime produced is valued at \$79,400, as above.

TABLE NO. IV.  
PRODUCTION OF LIMESTONE IN 1908.

Counties	Number of producers	Building	Paving, Curbing and Flagging	Rubble and Riprap	Crushed Stone			Lime	Other Purposes	Total Value
					Road-making	Railroad Ballast	Concrete			
Allamakee .....	2	\$ 242								\$ 242
Appanoose .....	1									
Benton .....	3	491								491
Black Hawk .....	5	6,534	\$ 248	\$ 932	\$ 645		\$ 5,046			13,405
Cedar .....	1									
Cerro Gordo .....	3	5,850	700	250	2,125		1,100	\$ 20,000	\$ 750	30,775
Clarke .....	4	745	600							1,345
Clayton .....	5	4,404	200	1,900	140		2,400	400		9,444
Clinton .....	3	1,050		500	300				2	1,852
Dallas .....	1									
Davis .....	1									
Decatur .....	1									
Delaware .....	3	60		60						120
Des Moines .....	7	1,120	158	3,122	6,522	\$ 375	7,036			18,333
Dubuque .....	8	12,760	4,230	5,398	1,205	60	5,914	9,450		39,017
Fayette .....	5	4,615		500	200		50		300	5,665
Floyd .....	2	1,050	300	300						1,650
Hardin .....	4	1,528					35,774			37,302
Henry .....	1									
Howard .....	3	578								578
Humboldt .....	2	1,454								1,454
Jackson .....	3	256		100				49,350	50	49,756
Johnson .....	1									
Jones .....	10	13,175	3,030	26,322	1,098	5,522	3,695			52,842
Keokuk .....	4	488		15	70		50			623
Lee .....	9	6,382		2,840	12,575	11,625				33,422
Linn .....	7	3,121		35,841	10,300	24,442	1,361			75,065

PRODUCTION OF LIMESTONE IN 1908

Louisa .....	5	2,600	-----	3,023	-----	-----	-----	-----	-----	5,623
Madison .....	4	1,700	-----	-----	5,900	7,700	13,628	-----	500	29,428
Marshall .....	1	-----	-----	-----	-----	-----	-----	-----	-----	-----
Pocahontas .....	1	-----	-----	-----	-----	-----	-----	-----	-----	-----
Scott .....	10	6,419	2,696	5,399	23,373	1,950	48,584	-----	-----	88,421
Van Buren .....	6	192	-----	300	-----	-----	-----	-----	-----	492
Wapello .....	3	6,800	-----	5,120	-----	-----	6,230	-----	-----	18,150
Washington .....	5	496	-----	125	-----	-----	1,050	-----	30	1,701
Single Producers.....	9	3,736	77	27,662	722	14	17,521	200	310	50,242
	131	\$ 87,846	\$ 12,239	\$ 119,709	\$ 65,175	\$ 51,688	\$149,439	\$ 79,400	\$ 1,942	\$ 567,438

The outlook for the stone industry is not encouraging save in the line of crushed stone for road work and concrete. The growth in the use of cement and cement products is reducing the demand for stone and brick for structural purposes.

### Sand and Gravel

According to the reports received the production of sand and gravel for 1908 more than doubled the output for 1907. The records for both years are more or less incomplete. During the latter year the majority of commercial producers responded. The production reported by ninety-four producers representing twenty-nine counties may be classified as follows:

Kind	Quantity in cubic yards	Value
Moulding Sand .....	3,635	\$ 5,054
Building Sand .....	388,644	205,121
Engine Sand .....	20,826	5,811
Furnace Sand .....	2,000	875
Other Sands .....	36,146	14,039
Gravel .....	167,559	55,544
Total .....	618,810	\$ 286,444

The value of the output reported for 1907 was \$110,501.

Table V shows the value of sand and gravel produced in Iowa in 1908 by counties:



TABLE V.

SAND AND GRAVEL PRODUCTION IN IOWA IN 1908 BY COUNTIES.

Counties	No. of produ'rs	Mold- ing Sand	Build- ing Sand	En- gine Sand	Furn- ace Sand	Other Sand	Gravel	Total Value
Appanoose .....	1							
Black Hawk .....	10	\$2,475	\$ 34,000	\$1,000		\$ 4,240	\$ 200	\$ 41,915
Cerro Gordo .....	1							
Clayton .....	2	30			\$ 875			905
Clinton .....	1							
Des Moines .....	5		4,875				5,225	10,100
Dubuque .....	5	6	4,913	98		410		5,427
Fayette .....	3		1,090				800	1,890
Floyd .....	4					1,700	980	2,680
Hardin .....	2		59				150	209
Howard .....	1							
Ida .....	2		2,600					2,600
Johnson .....	6	120	6,425			120	1,430	8,095
Linn .....	6		15,959				270	16,229
Lyon .....	2		3,918	38		1,875		5,831
Marion .....	1							
Marshall .....	1							
Montgomery .....	1							
Muscatine .....	3		11,900			480	500	12,880
Osceola .....	2		2,000				534	2,534
Page .....	3		12,150			25		12,175
Palo Alto .....	4		1,895				1,314	3,209
Polk .....	11	1,359	55,568	821			8,668	66,416
Scott .....	1							
Sac .....	3		900				4,570	5,470
Sioux .....	1							
Wapello .....	3	50	3,180			3,975	2,160	9,365
Woodbury .....	4		29,325	795			16,250	46,370
Wright .....	5		6,448	2,693			5,729	14,870
Single Producers .....		1,014	7,916	366		1,214	6,764	17,274
Total .....	94	\$5,054	\$205,121	\$5,811	\$ 875	\$14,039	\$55,544	\$ 286,444

### Gypsum

The production of gypsum and gypsum products for 1908 was less than for the preceding year. The statistics of the industry for the year 1908 were as follows:

	Short Tons	Value
Crude gypsum mined .....	240,270	-----
Distributed as follows:		
Sold crude—		
To Portland cement mills .....	18,960	\$ 25,429
As land plaster .....	1,128	2,087
To plaster mills .....	856	1,632
Sold burned—		
Plaster of Paris, wall plaster, etc. ....	158,043	535,540
Total .....	179,987	\$ 564,688

The production of crude gypsum for 1907 was 251,874 short tons and was distributed as crude gypsum 18,834 tons valued at \$29,115 and burned gypsum 162,965 tons valued at \$701,268. The price per ton was considerably lower for 1908 than for the preceding year.

### Mineral Water

The amount of mineral water produced and sold was the largest in the history of the industry in Iowa. Five counties reported sales during the year. The springs at Colfax in Jasper county are by far the largest producers. The amount and value of the water sold were as follows:

	Quantity in gallons	Value
Medicinal .....	381,500	\$ 41,650
Table .....	102,000	13,700
Total sold .....	483,500	\$ 55,350

Used for soft drinks 317,500 gallons, not included in above figures.

The sales for 1907 amounted to 127,200 gallons valued at \$30,500.

### Lead and Zinc

On account of the slump in the price of pig lead the amount of lead ore produced and sold in the Dubuque region was much less than for the preceding year. The sale of zinc ores accumu-

lated during several years brought up the zinc figures. The amount of ore sold during the year was as follows:

	Quantity in pounds	Value
Lead ore .....	124,900	\$ 3,614
Zinc ore .....	950,000	23,183

The outlook for the present year is not promising unless the prices of pig lead and spelter increase. Some lead is being mined and held in stock. Prospecting and development work continue in a small way.

### Sand-lime Brick

The sand-lime brick industry shows a falling off both in quantity and value of output. There was no change in the number of plants. The product was distributed as follows:

	Number in thousands	Value
Common brick .....	4,701	\$ 33,784
Front brick .....	535	5,223
Miscellaneous .....		3,874
Total .....	5,236	\$ 42,881

### Portland Cement

Iowa for the first time appears as a producer of Portland cement. The Northwestern States Portland Cement Company of Mason City was the only plant in operation during the year. The plant of the Iowa Portland Cement Company of Des Moines is approaching completion and will probably be a producer during the present year. The Hawkeye Portland Cement Company has made but little progress during the year. The price of cement to Iowa consumers is the lowest it has ever been. The Lehigh Portland Cement Company has purchased property in the vicinity of Mason City and contemplates putting up a plant in the near future.

### **Iron**

The Missouri Iron Company continued development work during 1908 and perfected its plant for handling and treating ore. Ore on a commercial basis was not produced during the year.

### **Peat**

But little progress was made during the year toward the production and utilization of peat on a commercial scale. The plant installed near Fertile in Worth county was operated during a portion of the year but rather in an experimental way.